

Application/Control Number: 09/874,872
Art Unit: 2613

Docket No.: 2001-0161A

REMARKS

Reconsideration and allowance in view of the proposed claim amendments and the following remarks are respectfully requested.

Claims 1-22 and 27-29 remain pending, claims 23-26 have been canceled without prejudice or disclaimer, and claim 17 was amended only to improve form.

Rejection of Claims 1-29 Under Section 102

On page 7 of the present Office Action, the Examiner rejected claims 1-29 as allegedly being anticipated by U.S. Pat. No. 5,748,789 to Lee et al. ("Lee"). Applicant respectfully traverses the rejection with respect to claims 1-22 and 27-29. Claims 23-26 have been canceled without prejudice or disclaimer rendering the rejection of claims 23-26 moot.

Independent claim 1 is directed to a method of encoding video content. The method includes, among other things, routing each video content portion to one of a plurality of encoders based on a model associated with each video content portion.

On page 3 of the Office Action, the Examiner asserted that Lee discloses the above-mentioned feature in Fig. 33,

where it clearly discloses the routing or the video content portion is routed or directed to plural video object coders 1504...1508...etc. and as well as "routing decision" as done by the element 1502, the object definition section which routs [sic] or directs the video content portion to other plural object coders 1504...1508...etc.

Applicants respectfully disagree with the Examiner.

Lee, at col. 42, lines 34-65, discloses:

The object definition block 1502 of the encoder determines how to separate this input video sequence into objects. The object definition process generally includes identifying separate objects in the input video sequence and defining the shape of these objects. At the end of this process, an object has shape information and is associated with a bounding rectangle that encloses the object. Each of the objects represents parts of the image frames in the video sequence, and these parts are represented by image data such as an array of pixel values, where each pixel value has color components (YUV or RGB, for example). The shape information for an object describes the boundary or

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"contour" of the object within its bounding rectangle.

The shape information is either generated by segmentation or is predefined, as in the case of synthetic objects that already have an alpha plane. The shape information is typically represented by a mask such as an array of alpha values (e.g., 8 bit grey scale alpha) associated with a synthetic object or a binary mask generated during the segmentation process. Each object can have an arbitrary shape. One way to generate shape information for natural image video is to use the well-known "blue screen" technique. In this approach, an object or objects are filmed in front of blue screen. The blue background in each frame can then be used to generate the shape information of the object for each frame: the blue region in each frame represents the area outside an object, while the non-blue area represents the object.

After the object definition phase, the encoder separately codes objects as illustrated in the coding units 1504-1508 shown in FIG. 33. These coding units 1504-1508 encode the shape, motion and texture for each object.

Thus, Lee discloses that object definition block 1502 identifies and defines the shape of objects in an input video sequence. The shape of an object may be represented by a mask. Following the object definition phase, object definition block 1502 routes object 0 data to object 0 coding unit 1504, object 1 data to object 1 coding unit 1506, ... etc. to encode shape, motion and texture for each object. Thus, each of the object coding units is identical and each object coding unit is selected by object definition 1502 to code a different object.

Assuming *arguendo* that object definition 1502 routes a video content portion to a plurality of encoders, a point which Applicants do not concede, the above portion of Lee, as well as any other portion of Lee, does not disclose or suggest routing each video content portion to one of a plurality of encoders based on a model associated with each video content portion. Even if one assumes that each object is assigned a predefined model by a mask, as the Examiner alleges on page 2 of the Office Action, a point which Applicants do not concede, the routing of the object to one of the encoders is not based on the model associated with each of the video content portions or objects.

Lee, at col. 3, lines 8-25, discloses:

The method of the invention reduces coding overhead and the number of bits needed to code objects in a sequence of video frames by using shape information to identify transparent transformation blocks around an object and

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then skipping encoding/decoding of these blocks.

In an object-based video encoder or decoder designed according to the invention, shape information is available independent of motion estimation and texture information. As such, the method of the invention can use the shape information to identify transparent transformation blocks and skip texture and possibly motion coding and decoding for these blocks. An encoder employing this method evaluates the shape of an object to determine whether a given block is transparent, i.e. covered by the object. If the block is transparent, the encoder can skip texture coding for inter and intra frame blocks. The encoder can also skip coding of motion estimation data, such as motion vectors or transformation coefficients for inter frame blocks.

Thus, Lee discloses using shape information to identify transparent transformation blocks around an object and skipping coding steps, such as coding of texture and motion. However, Applicants submit that skipping coding steps for transparent information blocks identified by using shape information is certainly not the equivalent of routing each video content portion to one of a plurality of encoders based on the model associated with each video content portion, as required by claim 1. Further, the skipping of blocks is not tied to any particular shape, or model, but depends on the position of a block with respect to a boundary of a shape.

Because Lee does not disclose or suggest each and every feature of claim 1, Applicants submit that claim 1 is not anticipated by Lee and respectfully requests that the rejection of claim 1 be withdrawn.

Claims 2-8 depend from claim 1 and are also not anticipated by Lee for the reasons discussed with respect to claim 1. Therefore, Applicants respectfully request that the rejection of claims 2-8 be withdrawn.

Independent claim 9 recites features similar to those of claim 1 and, therefore, is not anticipated by Lee for reasons similar to those provided with respect to claim 1. Applicants, therefore, respectfully request that the rejection of claim 9 be withdrawn.

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Claims 10-12 depend from claim 9 and are not anticipated by Lee for the reasons discussed with respect to claim 9. Therefore, Applicants respectfully request that the rejection of claims 10-12 be withdrawn.

Independent claim 13 is directed to a method of encoding video content. The method includes, among other things, if a video content portion does not relate to one of a plurality of predefined models, assigning the video content portion to a generic model, and encoding the video content portions associated with the generic model using a generic encoder.

As mentioned previously, Lee discloses object coding units 1504, 1506, and 1508 each for coding a different object. Lee is completely silent regarding the encoder being associated with particular models, such as a generic or other model, or the objects being associated with or assigned particular models, such as a generic or other model. Thus, Lee cannot and does not disclose or suggest encoding the video content portions associated with the generic model using a generic encoder, as required by claim 13. Further, Lee does not disclose or suggest, if a video content portion does not relate to one of a plurality of predefined models, assigning the video content portion to a generic model, as required by claim 13. Applicants, therefore, respectfully request that the rejection of claim 13 be withdrawn.

Claim 14 depends from claim 13 and is not anticipated by Lee for the reasons provided with respect to claim 13. Therefore, Applicants respectfully request that the rejection of claim 14 be withdrawn.

Independent claim 15 recites features similar to claim 1 and is not anticipated by Lee for reasons similar to those discussed with respect to claim 1. Applicants, therefore, respectfully request that the rejection of claim 15 be withdrawn.

Claims 16 and 17 depend from claim 15 and are not anticipated by Lee for at least this reason. Applicants respectfully request that the rejection of claims 16 and 17 be withdrawn.

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Claim 18 recites a feature similar to the previously-discussed feature of claim 13 and is not anticipated by Lee for reasons similar to those discussed with respect to claim 13. Therefore, Applicants respectfully request that the rejection of claim 18 be withdrawn.

Claims 19 and 20 depend from claim 18 and are not anticipated by Lee for at least the reasons discussed with respect to claim 18. Therefore, Applicants respectfully request that the rejection of claims 19 and 20 be withdrawn.

Claim 21 has features similar to those of claim 1 and is not anticipated by Lee for at least reasons similar to those of claim 1. Therefore, Applicants respectfully request that the rejection of claim 21 be withdrawn.

Claim 22 depends from claim 21 and is not anticipated for at least the reasons discussed with respect to claim 21. Therefore, Applicants respectfully request that the rejection of claim 22 be withdrawn.

Claims 23-26 are canceled without prejudice or disclaimer rendering the rejection of claims 23-26 moot. Therefore, Applicants respectfully request that the rejection of claims 23-26 be withdrawn.

Claims 27-29 refer to the method of claims 1, 18 and 21 respectively and are not anticipated by Lee for reasons similar to those discussed with respect to claims 1, 18, and 21. Therefore, Applicants respectfully request that the rejection of claims 27-29 be withdrawn.

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CONCLUSION

Having addressed all rejections, Applicants respectfully request that the proposed amendment be entered and, that upon entry of the amendment, the subject application will be in condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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